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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10 015,044	10 26 2001	Angelo L. Mazzei	5064	6254

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EXAMINER

SMITH, DUANE

ART UNIT	PAPER NUMBER
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1724

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DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/015,044

Applicant(s)

MAZZEI, ANGELO L.

Examiner

Duane S. Smith

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) 1-7, 9-28 and 30-32 is/are rejected.
- 7) ☐ Claim(s) 8 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 6) ☐ Other:

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

"20" as on page 8 line 24.

"106" as on page 16 line 4.

"110" as on page 16 line 7.

"128", "129", "130", "131", "132", "133", "134", "135" as on page 18 lines 14-15.

"137" as on page 19 line 9.

"162" as on page 20 line 24.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The disclosure is objected to because of the following informalities: at page 20 line 7, "Fig. 11" should read as --Fig. 14--.

Appropriate correction is required.

Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 32 "said fluid release" lacks clear antecedent basis, there being no fluid release recited in claims 30 and 31 upon which claim 32 directly or indirectly depends.

Applicant is advised that should claim 2 be found allowable, claims 12 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two

claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Reed et al(US Patent No. 3,833,718)

Reed et al disclose a collider including a housing having a chamber(57) having a pair of opposed nozzles(50,52), the nozzles flowing a portion(30,32) of a stream(29) such that the streams flow into each other along an axial path and at an angle not larger than 90 degrees(Figs. 3-4) and a converging exit(36).

Claims 30-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Baranowski Jr(US Patent No. 4,255,124)

Baranowski Jr teaches a static mixing reactor including a body(14) having a cylindrical inner surface and axial passage, a partial barrier within the axial passage dividing the passage into a first and second chamber having a concave circular face(18a, 19a) having upstream face(19a,18a) and down stream face(18b,19b), a plurality of arcuate extending blades(18,19), and cove surface(16) and fluid release(14a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128).

Benskin et al disclose a system including an aspirating injector or eductor(col. 2 line 29), a collider(34a,34b), reactor(18), and flow release(42) in series. Benskin et al does not disclose the eductor to be specifically an aspirating injector including a body having an axial passage, a converging passage, a throat section, and a diverging section in series wherein an injector port through the body enters the throat section. However such eductors are well known in the art as shown by Mazzei. Mazzei discloses an aspirating injector(20) including a body(21) having an axial passage(27), a converging passage(35), a throat section(40), and a diverging section(43) in series wherein an injector port(45) through the body enters the throat section. It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the eductor of Mazzei for the eductor of Benskin et al in order to accelerate mixing of gas and solution as suggested by Mazzei(col. 1 lines 35-50) and that mere substitution of a generic eductor with a specific eductor is well within the scope of one of ordinary skill in the art and there has been no showing of unobvious or unexpected results of utilizing one known eductor over another.

Claims 2-4 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) as applied to claims in paragraph above, and further in view of Mazzei(US Patent No. 5,674,312).

Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) disclose the system essentially as claimed except for there being a gas/liquid separator as the fluid release. However, Mazzei discloses a fluid release being a separator to relieve excess gas pressure from a liquid being a centrifugal separator(27) with a liquid control valve(30). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a gas/liquid separator as in Mazzei in the system of in order to control excess undissolved gas in the solution as suggested by Mazzei (col. 2 lines 13-25).

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) as applied to claim 1 in paragraph above and further in view of Reed et al(US Patent No. 3,833,718).

Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) disclose the system essentially as claimed except for the specific collider structure as in instant claims 6-8. However, Reed et al does disclose a collider having Reed et al disclose a collider including a housing having a chamber(57) having a pair of opposed nozzles(50,52), the nozzles flowing a portion(30,32) of a stream(29) such that the streams flow into each other along an axial path and at an angle not larger

than 90 degrees(Figs. 3-4) and a converging exit(36). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the collider of Reed et al for the collider of the system in that mere substitution of one known collider for another being within the scope of one of ordinary skill in the art and there has been no showing of unexpected or unobvious results of utilizing one known collider over another.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) as applied to claim 1 above, and further in view of Baranowski Jr(US Patent No. 4,255,124)

Benskin et al taken together with Mazzei disclose the system essentially as claimed except for the specific structure of the reactor. However, Baranowski Jr does disclose a static mixing reactor including a body(14) having a cylindrical inner surface and axial passage, a partial barrier within the axial passage dividing the passage into a first and second chamber having a concave circular face(18a, 19a) having upstream face(19a,18a) and down stream face(18b,19b), a plurality of arcuate extending blades(18,19), and cove surface(16). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the reactor of Baranowski Jr for the reactor of the system in order to provide mixing without heat transfer as suggested by Baranowski Jr(col. 3 lines 5-10).

Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No.

5,863,128) in view of Baranowski Jr(US Patent No. 4,255,124) as applied to claims in paragraph above, and further in view of Mazzei(US Patent No. 5,674,312).

Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) in view of Baranowski Jr(US Patent No. 4,255,124) disclose the system essentially as claimed except for there being a gas/liquid separator as the fluid release. However, Mazzei discloses a fluid release being a separator to relieve excess gas pressure from a liquid being a centrifugal separator(27) with a liquid control valve(30). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a gas/liquid separator as in Mazzei in the system of in order to control excess undissolved gas in the solution as suggested by Mazzei (col. 2 lines 13-25).

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) in view of Baranowski Jr(US Patent No. 4,255,124) as applied to claims in paragraph above, and further in view of Reed et al(US Patent No. 3,833,718).

Benskin et al(US Patent No. 6,083,385) taken together with Mazzei(US Patent No. 5,863,128) in view of Baranowski Jr(US Patent No. 4,255,124) disclose the system essentially as claimed except for the specific collider structure as in instant claims 6-8. However, Reed et al does disclose a collider having Reed et al disclose a collider including a housing having a chamber(57) having a pair of opposed nozzles(50,52), the nozzles flowing a portion(30,32) of a stream(29) such that the streams flow into each other along an axial path and at an angle not larger than 90 degrees(Figs. 3-4) and a converging exit(36). It would have been obvious to one of ordinary skill in the art at the

time of the invention to substitute the collider of Reed et al for the collider of the system in that mere substitution of one known collider for another being within the scope of one of ordinary skill in the art and there has been no showing of unexpected or unobvious results of utilizing one known collider over another.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866).

Mazzei discloses a system including an aspirating injector (14) and flow release(27). Mazzei does not disclose a collider. However Hoppe et al does disclose a collider(20) in a system including an aspirating injector(14) and flow release(22). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a collider in the system of Mazzei in order to provide intimate mixing as suggested by Hoppe et al(col. 4 lines 20-21).

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866) as applied to claim 17 above, and further in view of further in view of Reed et al(US Patent No. 3,833,718).

Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866) disclose the system essentially as claimed except for the specific collider structure as in instant claims 6-8. However, Reed et al does disclose a collider having Reed et al disclose a collider including a housing having a chamber(57) having a pair of opposed nozzles(50,52), the nozzles flowing a portion(30,32) of a stream(29)

such that the streams flow into each other along an axial path and at an angle not larger than 90 degrees(Figs. 3-4) and a converging exit(36). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the collider of Reed et al for the collider of the system in that mere substitution of one known collider for another being within the scope of one of ordinary skill in the art and there has been no showing of unexpected or unobvious results of utilizing one known collider over another.

Claim 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866).

Mazzei discloses a system including an aspirating injector (14) and flow release(27). Mazzei does not disclose a reactor. However Hoppe et al does disclose a reactor(20) in a system including an aspirating injector(14) and flow release(22). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a collider in the system of Mazzei in order to provide intimate mixing as suggested by Hoppe et al(col. 4 lines 20-21).

Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866) as applied to claims21-23 above, and further in view of Baranowski Jr(US Patent No. 4,255,124)

Mazzei(US Patent No. 5,674,312) taken together with Hoppe et al(US Patent No. 5,433,866) disclose the system essentially as claimed except for the specific structure

of the reactor. However, Baranowski Jr does disclose a static mixing reactor including a body(14) having a cylindrical inner surface and axial passage, a partial barrier within the axial passage dividing the passage into a first and second chamber having a concave circular face(18a, 19a) having upstream face(19a,18a) and down stream face(18b,19b), a plurality of arcuate extending blades(18,19), and cove surface(16). It would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the reactor of Baranowski Jr for the reactor of the system in order to provide mixing without heat transfer as suggested by Baranowski Jr(col. 3 lines 5-10).

Claims 8 and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: None of the prior art of record teach nor suggest the claimed features of instant claims 8 and 29 in combination with the features of the independent claim and any intervening claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mizanandjian et al, Grossmann, Mazzei '922, Ford et al, Serafin, Allen '475, Allen '979, Russo, Mazzei '341, Lloyd, Hoppe et al '576, and Schmitt disclose similar systems and devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duane S. Smith whose telephone number is 703-308-3792. The examiner can normally be reached on 8:30-6:00 M-TH.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dunn can be reached on 703-308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Duane S. Smith
Primary Examiner
Art Unit 1724

D. Smith
4-3-03

dss
April 3, 2003